DOCUMENT RESUME

ED 412 600 EA 028 637

AUTHOR Crampton, Faith; Whitney, Terry
TITLE The Relationship between Educational Expenditure and Student Achievement: When Does Money Matter? Education Partners Working Papers.
INSTITUTION National Conference of State Legislatures, Denver, CO.
ISBN ISBN-1-55516-575-3
PUB DATE 1996-00-00
NOTE 15p.
AVAILABLE FROM National Conference of State Legislatures, Education Partners Project, 1560 Broadway, Suite 1700, Denver, CO 80202-5140.
PUB TYPE Information Analyses (070)
EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Academic Achievement; Class Size; *Educational Finance; Elementary Secondary Education; Expenditure Per Student; *Expenditures; Multiple Regression Analysis; Multivariate Analysis; *Outcomes of Education; *State Action

ABSTRACT

The link between educational expenditure and student achievement remains a lively topic of debate after almost 30 years of study. This paper is designed to help legislators and other state policymakers understand a complex and technical area of research that will play an important role in state funding decisions. The paper examines why the relationship between educational expenditure and student achievement is important to state legislators and other policymakers; discusses results of early studies (1965-90) that explored the relationship between educational expenditure and student achievement; analyzes more recent studies (1990-95) of that relationship; identifies state initiatives linking educational expenditure and student achievement; and offers conclusions and recommendations to state policymakers. State policymakers are advised to explore alternatives for forging proactive links between education funding and student achievement; fund fiscal incentive and reward programs at the school and school district levels; develop long-term state research around the relationship of expenditure and achievement; and collect and maintain the necessary data for research and decision making. Two tables and 15 endnotes are included. (Contains 12 references.) (LMI)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 412 600

Education Partners
Working Papers
National Conference of State Legislatures

The Relationship Between Educational Expenditure and Student Achievement: When Does Money Matter?

The link between educational expenditure and student achievement remains a lively topic of debate among policymakers, educators and researchers after almost 30 years of study. For many years, researchers concluded that "money did not matter," and that dedicating additional funds to schools was "throwing money at education."[1] However more recent research has challenged such claims. Still policymakers are left with the question, if money matters in educational spending, when does it matter? In response to those concerns, some states, such as Kentucky and Tennessee, have taken a proactive response.

The link between educational expenditure and student achievement remains a lively topic of debate after almost 30 years of study.

This working paper is designed to assist legislators and other state policymakers to understand a complex and technical area of research that will continue to play an important role in state funding decisions. It is divided into five parts:

- Why the relationship between educational expenditure and student achievement is important to state legislators and other policymakers.
- Results and analysis of early studies on the relationship between educational expenditure and student achievement, 1965-1990.
- Results and analysis of more recent studies, 1990-1995.
- State initiatives linking educational expenditure and student achievement.
- Conclusions and recommendations for state policymakers.

BEST COPY AVAILABLE

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY
G. Loos
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

National Conference of State Legislatures
1560 Broadway, Suite 700
Denver, Colorado 80202
(303) 830-2200 fax (303) 863-8003

EA 028 637

Why the Relationship Between Educational Expenditure and Student Achievement Is Important to State Legislators and Other Policymakers

To make the best use of limited state resources, it is important to understand the relationship between educational expenditures and student achievement.

Understanding the relationship between educational expenditures and student achievement is important to state legislators and other policymakers who desire to make the best use of limited state resources. Education is one of many important public services funded at the state level, and hence education competes with other public services for funding. Even in good economic times, there is rarely enough funding to provide all public services at the desired levels. Not only are policymakers concerned with overall levels of funding in its relation to overall student achievement, they are also interested in targeting money where it will have the most impact in improving the academic success of students, e.g., in areas of the state or with groups of students whose achievement has lagged behind national averages. In addition, elected and appointed officials have an obligation to see that tax dollars are used wisely. The ability to measure the impact of each dollar spent on education enables them to demonstrate to voters that their taxes are being spent prudently.

Results and Analysis of Early Studies: 1965-1990

Early research on the relationship between expenditure and achievement is often referred to as "production function research."[2] This kind of research is modeled on classical economic theory, more specifically, on a private sector manufacturing model, i.e., an assembly line model, where the goal is to maximize production while minimizing costs. Educational production function research dates back to the 1960s when researchers attempted to establish the relationship of a set of educational "inputs" to a single "output." "Multiple regression analysis" is the statistical method most commonly used in production function research. It is a versatile research method that can be used to analyze large quantities of data where the goal is to explain or predict variation in a single variable, such as an educational output, on the basis of multiple variables, such as different educational inputs. (See appendix A for a more detailed description of multiple regression analysis.) Inputs are some combination of per pupil expenditures, teacher experience, teacher education, teacher salaries, administrative inputs, facilities and student/teacher ratio. Outputs are often a standardized achievement test score; the rate of high school graduation; or the percentage of graduates pursuing postsecondary education. Other outputs include student attitudes, attendance rates and dropout rates.[3]

The results of these studies were mixed with few showing a strong positive relationship between expenditure and educational outputs. In addition, the results were often inconsistent and contradictory. Based on these factors, early researchers concluded that no positive relationship between expenditure and achievement existed, or, in other words, money did not make a difference. Many of the studies, however, contained significant weaknesses in their research methods, which may have accounted for inconclusive results.[4] One of the major drawbacks of these studies lies with the nature of multiple regression analysis in that it can analyze only one output variable at a time. The goals of schooling include numerous academic outcomes, making a research model with a single outcome unrealistic. Secondly, because of limited output measures available, they frequently relied on the results of tests such

as the Scholastic Achievement Test (SAT), which tests a small percentage of high school students, and only those who are college bound. A third weakness is the cross sectional nature of many of the studies; that is, they drew conclusions based on the analysis of a single year of data. A fourth weakness of some studies was their failure to control for the impact of student poverty in the analysis or to control for it inappropriately through the use of other related but less precise variables, such as family income or parental education. Finally, since a sizable number of studies relied upon analysis of a single school district or small number of school districts, the results are not generalizable to all school districts.[5]

This body of research culminated with the 1989 study by Hanushek where he analyzed the results of 187 production function studies published over the last 20 years.[6] He concluded that these studies indicated there was not a systematic positive relationship between education expenditure and student achievement. He based his conclusions on a simplistic method of analysis, called vote counting, where he tallied the results of the studies for particular inputs, such as per pupil expenditures and teacher salaries. For example, of 65 studies that use per pupil expenditure as an input variable, only 13 found its relationship with outputs to be positive and statistically significant. Table 1 summarizes results for all input variables. (See also appendix A for a more detailed explanation of vote counting as a research method.)

Table 1
Summary of Estimated Expenditure Parameter Coefficients from 1987 Studies of Educational Production Functions

	Statistically significant			Statistically insignificant			Unknown
Input	Number of Studies	+	–	Total	+	–	Sign
Teacher/pupil ratio	152	14	13	125	34	46	45
Teacher education	113	8	5	100	31	2	37
Teacher experience	140	40	10	90	44	31	15
Teacher salary	69	11	4	54	16	14	24
Expenditures/pupil	65	13	3	49	25	13	11
Administrative inputs	61	7	1	53	14	15	24
Facilities	74	7	5	62	17	14	31

Results and Analysis of More Recent Studies: 1990-1995

Recent studies have taken advantage of more sophisticated research methods, such as meta-analysis and canonical analysis, to reanalyze the results of almost 20 years of educational production function studies and to craft new studies. This body of research challenges earlier findings that there is not a systematic, positive relationship between expenditure and educational achievement.

In 1994, the research team of Hedges, Laine and Greenwald published results of their research, which reanalyzed the results of many earlier production function studies using meta-analysis.[7] Meta-analysis uses a variety of statistical methods in order to synthesize the results of a large number of studies. (See appendix A for more detailed explanations of meta-analysis and canonical analysis.) The results of their analysis indicated that there was a systematic, positive relationship between expenditure and student achievement. It is important to note, however, that their research was based on the results of older studies that used multiple regression analysis containing the weaknesses noted in the previous section.

Data collected by the state department of education is used to conduct canonical analyses that incorporate multiple student outcomes.

In a recent study of the relationship of educational inputs to educational achievement in New York for academic years 1989-1991, research demonstrated a moderate to strong, positive relationship between expenditure and educational achievement as measured on test scores of students in reading, mathematics and writing at third, sixth, and eighth grade levels.[8] Nine different student outcomes were used; eight were measures of academic achievement, and the ninth was the percentage of students going on to college. This study, using canonical analysis, corrected for many of the weaknesses of previous studies.[9] In particular, canonical analysis allows for the examination of multiple student outcomes, making it superior to older production function research that relied upon multiple regression analysis.[10] Unlike meta-analytic research, this analysis used primary data collected by the state department of education. It is important to note that expenditure mattered where it "bought" smaller class sizes, more experienced teachers, and teachers with higher levels of formal education. The results also indicated that such conditions were particularly important for school districts with relatively high percentages of students living in poverty.

State Initiatives Linking Educational Expenditure and Student Achievement

Although the research mentioned above will continue to be important, it is reactive; that is, the past is studied in order to gain insights into the future. On the other hand, a few states, such as Kentucky, Tennessee, Indiana and South Carolina, have begun to take a proactive approach by building components linking expenditures and outcomes into their funding systems or developing and monitoring their own longitudinal research projects in schools.

Kentucky and Tennessee are probably the most widely known states engaging in these activities. As a result of the 1990 Kentucky Education Reform Act,[11] high achieving schools are fiscally rewarded. In the 1994-95 school year, the first rewards, approximately $15 million, were distributed to schools through the Successful School Rewards program, based on their

performance of the Kentucky Instruction Results Information System (KRIS).[12] In Tennessee, a pilot project, called the Tennessee STAR Program,[13] begun in 1985, seeks to determine if reduced class sizes in early grades (K-3) will enhance student achievement. Small class size was defined as 13 to 17 students, and regular class size was 22 to 25. At the outset of the project, provision was made by the state for comprehensive and ongoing study of results. Since class size reduction is one of the most costly of education reforms, it is important to study the results of this increased investment of money into early grades. Early results of the research indicate reduction of class size did have a positive impact on student achievement. Those in smaller classes consistently scored higher on reading and mathematics than those in regular size classes (see table 2).

Table 2
Summary of Project STAR Results in Terms of Percentile Ranks of Average Scores Based on National Test Norms

	Percentile			
Grade level	**K**	**1**	**2**	**3**
Total reading				
Small class size	59	64	61	62
Regular class size	53	53	52	55
Total math				
Small class size	66	59	76	76
Regular class size	61	48	68	69

Adapted from Word, E., Johnston, J., Bain, H.P., et al. *Student/Teacher Achievement Ratio (STAR)*: Tennessee's K-3 class size study. Nashville: Tennessee Department of Education. Figures 1 and 2.

South Carolina and Indiana have instituted fiscal incentive programs that reward student achievement. In South Carolina, the School Incentive Reward Program provides fiscal rewards to schools, districts, and area vocational centers that meet or exceed certain criteria.[14] Funding for the 1993-94 school year was $5 million and was based on a per pupil basis. It must be used in accordance with a school improvement plan. In Indiana, participation in the School Improvement Award Program is limited to individual schools that have demonstrated growth in student performance in state test scores as well as attendance and graduation rates. In 1993-94, $3.2 million was distributed to 1,032 of the state's 1,077 schools.[15]

Although all of these programs are important steps in taking a proactive approach to linking educational expenditures to student achievement, it is important to note that the amounts distributed in Kentucky, South Carolina and Indiana to the local level constitute less than 1

percent of state aid. In addition, many of these programs are too new to know whether they are successful motivators for schools and districts. Third, unless states make a commitment at the outset to dedicate resources to analyzing the success of these programs, enthusiasm, as well as funding, is prone to fade over time. In the case of the Tennessee Star Project, such a commitment to collection and analysis of data was made. However, the Star Project is limited to a small percentage of the state's schools.

Conclusions and Recommendations for State Policymakers

Analysis of the relationship between expenditure and student achievement depends upon collection and maintenance of the data over time.

The study of the relationship between expenditure and educational achievement remains a challenge to researchers although the use of more sophisticated research methods has yielded promising results. Research in New York and Tennessee makes a stronger case for the relationship of educational expenditure and student achievement, particularly when funding purchases smaller class sizes. There is also evidence that teachers' education and experience are significant factors. Not surprisingly, these elements are particularly important for the education of poor students. However, continued state level research in this area is critical. In addition, a few states are taking a proactive approach to linking educational funding and student achievement through the use of rewards and incentives. Because of their newness and the small percentage of total state aid they represent, it is difficult to gauge their success.

Establishing a relationship between educational expenditure and student achievement remains an important state policy issue. Legislators and other state policymakers may want to consider the following as they work toward that goal:

- Exploring alternatives for forging proactive links between education funding and student achievement;
- Funding fiscal incentive and reward programs at levels that will act as motivators for schools and districts to improve student achievement;
- Developing long-term state research around the relationship of expenditure and achievement;
- Collecting and maintaining the necessary data for research and decision making.

The experiences of states such as Kentucky, Indiana and South Carolina can serve as a beginning place for others who would like to incorporate fiscal rewards and incentives into their overall education funding system. At the same time, it is important to establish a mechanism for monitoring the success or failure of such programs. Although many states now have sizable school finance databases often with multiple years of data, they have not begun to systematically collect information on student achievement. In addition, even many school finance databases do not collect information at the school and classroom level. Yet, if state policymakers wish to be able to analyze the relationship between expenditure and student achievement, the collection and maintenance of this data over time is essential.

Appendix A
Definitions of Research Methods

Canonical Analysis

Canonical analysis statistically analyzes the relationship between two sets of variables, or a group of independent variables and a group of dependent variables. Its major advantage over multiple regression is its ability to analyze a research model where there is more than one dependent variable. Its major disadvantage lies in the difficulty of interpretation of some of the statistical results it generates. This is due in large part to its newness.

In research literature, the terms canonical analysis, canonical correlation, and canonical regression are sometimes used interchangeably. The more accurate term for this research technique is canonical analysis. Although canonical analysis, like multiple regression, is based on correlation, using the phrase canonical correlation to describe the research method is analogous to equating multiple regression with correlation—it is misleading and limiting. Canonical analysis represents a much more powerful research tool than simple correlation. Canonical regression is also a misnomer in that it implies that canonical analysis is a special case of regression whereas the opposite is true: multiple regression represents a special case of canonical analysis.

The foundation of canonical analysis is the formation of two linear combinations, one of the independent variables and one of the dependent variables, by differentially weighting them in order to obtain the maximum possible correlation. The correlation between the two linear combinations is referred to as the canonical correlation (R_c), and the square of the canonical correlation (R_c^2) is an estimate of the variance shared by the two canonical variates. A commonly used overall test for statistical significance is Wilks' Lambda. Canonical analysis also generates structure coefficients, sometimes referred to as loadings, which represent the correlation between the variables and their canonical variates. In general, only structure coefficients greater to or equal to absolute 0.30 are considered meaningful for interpretation. If the canonical correlation (R_c) is not statistically significant, structure coefficients are not usually interpreted. The square of a structure coefficient represents the proportion of variance of the variable with which it is associated that is accounted for by the function.

Meta-Analysis

Meta-analysis is the statistical analysis of the results of multiple quantitative research studies. Meta-analysis has been used extensively in psychology research since the early 1970s. Its use in education may be dated back to the early 1980s with studies such as impact of teaching methods and mainstreaming of special education students. Its use with production function studies is much more recent, with the 1993 study of Hedges, Laine, and Greenwold. Meta-analysis generally uses two types of statistical analysis: combined significance tests and combined estimation methods.

A frequent criticism of meta-analysis stems from its being secondary data analysis: that is, it analyzes already completed studies. The criticism is that meta-analysis does not distinguish between well-conducted and poorly conducted studies in its analysis. This criticism is unfounded if meta-analysis is conducted properly. One of the first steps in meta-analysis is selection of appropriate studies to analyze. At this juncture, the researcher reviews all of the potential studies and eliminates those that are questionable from a research methods point of view. Like all research, the quality of meta-analysis is dependent upon the skill of the researcher.

For a fuller explanation of the specific statistical techniques used in meta-analytic research, see *Meta-Analysis in Social Research*, by Gene V. Glass, Barry McGraw, and Mary Lee Smith. (Beverly Hills, Calif.: Sage Publications, 1981).

Multiple Regression

Multiple regression is a statistical method applicable to research where the goal is to explain or predict variation in a single variable (dependent variable) on the basis of multiple variables (independent variables). Multiple regression has been used widely in the social sciences, such as education and psychology, as well as in the physical sciences for nearly 30 years. It is also one of the commonly used statistical methods in econometric research. For further explanation and examples of multiple regression's use in econometrics, see *Introduction to Econometrics*, by G.S. Maddala. (New York: MacMillan Publishing Company, 1988.)

For researchers in the social sciences one of the major difficulties faced in multiple regression is multicollinearity. Multicollinearity refers to the intercorrelation of independent variables that can distort the results of the statistical analysis. For example, in analyzing the determinants of student achievement, it has been common to use as independent variables family income and level of parental education. However, in most instances these two variables are highly correlated as, generally speaking, the higher one's level of education, the higher personal income is. If both of these are included as independent variable, the results of the multiple regression analysis may be imprecise.

For a more detailed explanation of multiple regression and its use in social science research, see *Multiple Regression in Behavioral Research*, 2nd edition, by Elazar J. Pedhazur. (New York: Holt, Rinehart, and Winston, 1982.)

Vote Counting

Vote counting represents a primitive method of synthesizing the results of multiple research studies. Quite simply, the researcher selects a group of studies in a particular area and then tallies the results, usually along two dimensions: first whether, the results were statistically significant; and secondly, whether the results were positive or negative. The category with the most "votes" is used to draw conclusions about the body of research.

Endnotes

1. See, "Throwing Money at Schools," by Eric A. Hanushek, *Journal of Policy Analysis and Management* 1 (1981), pp. 19-41; and "The Impact of Differential Expenditures on School Performance," by Eric A. Hanushek, *Educational Researcher*, 18 (1989), pp. 45-65.

2. Production function studies are sometimes referred to as input-output studies or cost-quality studies.

3. In modeling an education production function, these variables are problematic as they may be argued more appropriately as inputs.

4. One of the major weaknesses of these studies lies with the concept of multicollinearity, a problem often encountered when using multiple regression analysis in education. Briefly, multicollinearity refers to the intercorrelation of independent variables, which can distort the results of the research. For more information on multicollinearity, see, "Multiple Regression," in Appendix A. A second weakness in some studies is specification error. Specification error refers to the inclusion of inappropriate variables in the research model. For example, using attendance rates and/or student attitudes as an output variable when they are more appropriately utilized as input variables may result in imprecise results.

5. Many of these studies contained other sampling problems. In particular, many of the samples were purposive, meaning that school district were not randomly selected, but selected on other criteria, such as convenience for the researcher.

6. Hanushek, Eric A. "The Impact of Differential Expenditures on School Performance." *Educational Researcher* 18:4:45-65 (May 1989). Actually, Hanushek's review covered only 38 publications or studies with 187 equations in total. In his analysis, he counted each equation within a publication as a "study."

7. See "Does Money Matter?: A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes," by Larry V. Hedges, Richard D. Laine and Rob Greenwald, *Educational Researcher* 23, (1994) pp. 5-14. Note that Hedges et al. used the same group of studies as Hanushek (1989) but eliminated some due to weaknesses in research methods.

8. "Is the Production Function Dead? An Analysis of the Relationship of Educational Inputs and Student Outcomes in New York," by Faith E. Crampton. A presentation to the Annual Conference of the American Education Finance Association, Savannah, Ga., March 1995.

9. Unlike many previous studies that were cross-sectional in nature, this research used three years of data. Secondly, the research model avoided specification error by inclusion only of those variables that are considered appropriate input and output variables. Statistical testing of the model supported its robustness. Third, differences in socioeconomic levels of

students was controlled for appropriately with the use of the variable of percentage of students in a school district who qualified for free or reduced price lunch. Fourth, the population of New York state school districts was used for the analysis, rather than a sample or subset.

10. This research also corrected for the problem of multicollinearity, often associated with multiple regression analysis through use of a proxy variable. More specifically, preliminary analysis of the data found that per pupil expenditure, student/teacher ratio, level of formal teacher education, and number of years of teaching experience were so highly intercorrelated that per pupil expenditure could be used as a proxy variable for teacher quality and class size.

11. For a concise description of the major components of the act, see *The Kentucky Education Reform Act: A Citizen's Handbook*, (Frankfort, Ky.: Legislative Research Commission, October 1994).

12. *Public School Finance Programs of the United States and Canada, 1993-94*, Steven D. Gold, David M. Smith, and Stephen B. Lawton, editors. Vol. I. (Albany, N.Y.: American Education Finance Association and Center for the Study of the States, Nelson A. Rockefeller Institute of Government, State University of New York, 1995) pp. 280, 289.

13. For a description of the project and results, see *The Tennessee Study of Class Size in the Early School Grades*, by Frederick Mosteller, (Cambridge, Mass. American Academy of Arts and Sciences, 1995); or "The Tennessee Study of Class Size in Early School Grades," by Frederick Mosteller, *The Future of Children: Critical Issues for Children and Youths* 5, no. 2 (1995) 113-27.

14. *Public School Finance Programs of the United States and Canada, 1993-94*. Vol. II, p. 558.

15. *Public School Finance Programs of the United States and Canada, 1993-94*. Vol. I, p. 250.

References

Crampton, Faith E. "Is the Production Function Dead? An Analysis of the Relationship of Educational Inputs and Student Outcomes in New York." A presentation to the Annual Conference of the American Education Finance Association, Savannah, Ga., March 1995.

Glass, Gene V., Barry McGraw, and Mary Lee Smith. *Meta-Analysis in Social Research.* Beverly Hills, Calif.: Sage Publications, 1981.

Gold, Steven D., David M. Smith, and Stephen B. Lawton, editors. *Public School Finance Programs of the United States and Canada, 1993-94.* Vol. I-II. Albany, N.Y.: American Education Finance Association and the Center for the Study of the States, Nelson A. Rockefeller Institute of Government, State University of New York, 1995.

Greenwald, Rob, Larry V. Hedges, and Richard D. Laine. "When Reinventing the Wheel Is Not Necessary: A Case Study in the Meta-Analysis in Education Finance." *Journal of Education Finance* 20, no. 1 (Summer 1994), 1-20.

Hanushek, Eric A. "Throwing Money at Schools." *Journal of Policy Analysis and Management 1* (1981): 19-41.

Hanushek, Eric A. "The Impact of Differential Expenditures on School Performance." *Educational Researcher* 18, no. 4 (May 1989), 45-65.

Hedges, Larry V., Richard D. Laine, and Rob Greenwald. "Does Money Matter?: A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes. *Educational Researcher* 23 (1994): 5-14.

The Kentucky Education Reform Act: A Citizen's Handbook. Frankfort, Kentucky: Legislative Research Commission, October 1994.

Maddala, G.S. *Introduction to Econometrics.* New York: MacMillan Publishing Company, 1988.

Mosteller, Frederick. *The Tennessee Study of Class Size in the Early School Grades.* Cambridge, Massachusetts: American Academy of Arts and Sciences, 1995.

Mosteller, Frederick. "The Tennessee Study of Class Size in Early School Grades." *The Future of Children: Critical Issues for Children and Youths* 5, no. 2 (1995), 113-27.

Pedhazur, Elazar J. *Multiple Regression in Behavioral Research,* 2nd edition. New York: Holt, Rinehart, and Winston, 1982.

Participating Legislators and Staff

James F. Angevine, Research Analyst, Education Committee, Pennsylvania
Ben Barrett, Associate Director Research, Kansas
Representative Jeanette Bell, Wisconsin
Assemblywoman Barbara Clark, New York
Representative Ron Cowell, Pennsylvania
Sandy Deaton, Legislative Research Commission
Martha Dorsey, Senate Research Office, Arizona
Representative Lloyd Frandsen, Utah
Deb Godshall, Legislative Council Staff, Colorado
Gerri Hesse, Senate Research Office, Georgia
Paul R. Jones II, House Legislative Staff, Louisiana
Senator Jane Krentz, Minnesota
Representative John L. Martin, Maine
Gene Murphree, Legislative Fiscal Office, Alabama
Representative Carolyn Oakley, Oregon
Senator Bill Ratliff, Texas
Senator H. Cooper Snyder, Ohio
Jim Watts, Education Specialist, North Carolina
Ellen Williams, Senate Education Committee Staff, Texas
Lois Wilson, Senate Education Committee, New York
Senator Ronald Withem, Speaker of the Legislature, Nebraska

Education Partners

ALCOA FOUNDATION
Kathleen W. Buechel, Vice President
F. Worth Hobbs, President

AMERICAN ASSOCIATION OF RETIRED PERSONS
Mary Rouleau, Director, State Legislation Department

AMERICAN FEDERATION OF TEACHERS
Jewell Gould, Director, Research Department
Donna Mollis Soncrant, Legislative Representative

HONEYWELL
Steve Keefe, Director, State Government Affairs

NATIONAL EDUCATION ASSOCIATION
Joseph A. Falzon, Professional Associate, Government Relations
Janis Hagey, State Policy Coordinator, Government Affairs

NATIONAL SOFT DRINK ASSOCIATION
David O'Brien Martin, Vice President, State & local Government Relations

PHILIP MORRIS
Pam O. Inmann, Regional Director, Government Affairs
Matt Paluszek, Regional Director, Government Affairs

PROCTER & GAMBLE COMPANY
Louise Hughes, Associate Director, State and Local Government Relations
Jeffrey A. Lane, Director, State and Local Government Relations

TRW, INC.
Michael Jackson, Director, Government Relations

About the Education Partners Project

In early 1994, the National Conference of State Legislatures and the Foundation for State legislatures convened a group of state legislators, legislative staff, business organizations and nonprofit organizations to begin a conversation about the principles and components of a sound state school finance system.

The major purpose of the Education Partners Project is to encourage dialogue and build consensus among these groups because educational goals can be realized only when coupled with a sound funding system.

In addition to a report, three working papers on related education finance topics emerged from the partnership:

- The Relationship Between Educational Expenditure and Student Achievement
- The Search for Equity in School Funding
- Taxation and Revenues for Education

Acknowledgments

The principal staff who worked on this project were Faith Crampton and Terry Whitney. We gratefully acknowledge the support throughout the project of Julie Davis Bell, Education Program director, and Jerry Sohns, director of development, Foundation for State Legislatures. We also would like to thank Ronald Snell, director of NCSL's Economic, Fiscal and Human Services Division, for his comments on earlier drafts of this publication.

This document should be attributed to those involved in the project and not to the organizations or legislative bodies to which they belong. The views presented here do not necessarily represent the position of the Foundation for State Legislatures or the National Conference of State Legislatures.

Copyright 1996 by the National Conference of State Legislatures.

ISBN 1-55516-575-3

This document is printed on recycled paper.

BEST COPY AVAILABLE

Education Partners
Working Papers
National Conference of State Legislatures

Education Partners
National Conference of State Legislatures
1560 Broadway, Suite 1700
Denver, Colorado 80202-5140

Bulk Rate
U.S. Postage
PAID
Denver, Colorado
Permit No. 20

BEST COPY AVAILABLE